RAW SEQUENCE LISTING
ERROR REPORT

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Application Serial Number: __10 057,532__

Source: __OIPE__

Date Processed by STIC: __7\11\02__

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FOR SEQUENCE RULES INTERPRETATION, PLEASE CONTACT ROBERT WAX, 703-308-4216.
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Revised 01/29/2002

RAW SEQUENCE LISTING   DATE: 07/11/2002
PATENT APPLICATION: US/10/057,532   TIME: 16:04:57

Input Set : **A:\Sequence.txt**
Output Set: **N:\CRF3\07112002\J057532.raw**

W--> (3 /14) - delete

```
     10 <110> APPLICANT: Lyon, Jeffrey A.
     11        Angov, Evelina
     12        Cohen, Joe D.
     13        Voss, Gerald
     15 <120> TITLE OF INVENTION: Recombinant P. falciparum Merozoite Protein-142 Vaccine
     17 <130> FILE REFERENCE: 003/238/SAP
     19 <140> CURRENT APPLICATION NUMBER: US 10/057,532
C--> 21 <141> CURRENT FILING DATE: 2002-06-28
     23 <150> PRIOR APPLICATION NUMBER: US 60/264,535, US 60/347,564
W--> 25 <151> PRIOR FILING DATE: 2001-01-26, 2001-10-26
     27 <160> NUMBER OF SEQ ID NOS: 12
     29 <170> SOFTWARE: Apple Macintosh Microsoft Word 6.0
```

ERRORED SEQUENCES

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     31 <210> SEQ ID NO: 1
     32 <211> LENGTH: 546
     33 <212> TYPE: PRT
     34 <213> ORGANISM: Artificial sequence
W--> 35 <220> FEATURE:
     36 <223> OTHER INFORMATION: E. coli expressed P. falciparum MSP142 (3D7) Protein Sequence
in pET-Trx42
W--> 37 <400> SEQUENCE: 1
     38 Met Ser Asp Lys Ile Ile His Leu Thr Asp
     39 1                   5                   10
     40 Asp Ser Phe Asp Thr Asp Val Leu Lys Ala
     41                     15                  20
     42 Asp Gly Ala Ile Leu Val Asp Phe Trp Ala
     43                     25                  30
E--> 44 Glu Trp Cys Gly Pro (Ccy) Lys Met Ile Ala
     45                     35                  40
     46 Pro Ile Leu Asp Glu Ile Ala Asp Glu Tyr
     47                     45                  50
     48 Gln Gly Lys Leu Thr Val Ala Lys Leu Asn
     49                     55                  60
     50 Ile Asp Gln Asn Pro Gly Thr Ala Pro Lys
     51                     65                  70
     52 Tyr Gly Ile Arg Gly Ile Pro Thr Leu Leu
     53                     75                  80
     54 Leu Phe Lys Asn Gly Glu Val Ala Ala Thr
     55                     85                  90
     56 Lys Val Gly Ala Leu Ser lys Gly Gln Leu
```

> invalid amino designator

```
57                    95                    100
58 Lys Glu Phe Leu Asp Ala Asn Leu Ala Gly
59                    105                   110
60 Ser Gly Ser Gly His Met His His His His
61                    115                   120
62 His His Ser Ser Gly Leu Val Pro Arg Gly
63                    125                   130
64 Ser Gly Met Lys Glu Thr Ala Ala Ala Lys
65                    135                   140
66 Phe Glu Arg Gln His Met Asp Ser Pro Asp
67                    145                   150
68 Leu Gly Thr Asp Asp Asp Asp Lys Ala Met
69                    155                   160
70 Ala Asp Ile Gly Ser Ile Glu Gly Arg Gly
71                    165                   170
72 Thr Met Ala Ile Ser Val Thr Met Asp Asn
73                    175                   180
74 Ile Leu Ser Gly Phe Glu Asn Glu Tyr Asp
75                    185                   190
76 Val Ile Tyr Leu Lys Pro Leu Ala Gly Val
77                    195                   200
78 Tyr Arg Ser Leu Lys Lys Gln Ile Glu Lys
79                    205                   210
80 Asn Ile Phe Thr Phe Asn Leu Asn Leu Asn
81                    215                   220
82 Asp Ile Leu Asn Ser Arg Leu Lys Lys Arg
83                    225                   230
84 Lys Tyr Phe Leu Asp Val Leu Glu Ser Asp
85                    235                   240
86 Leu Met Gln Phe Lys His Ile Ser Ser Asn
87                    245                   250
88 Glu Tyr Ile Ile Glu Asp Ser Phe Lys Leu
89                    255                   260
90 Leu Asn Ser Glu Gln Lys Asn Thr Leu Leu
91                    265                   270
92 Lys Ser Tyr Lys Tyr Ile Lys Glu Ser Val
93                    275                   280
94 Glu Asn Asp Ile Lys Phe Ala Gln Glu Gly
95                    285                   290
96 Ile Ser Tyr Tyr Glu Lys Val Leu Ala Lys
97                    295                   300
98 Tyr Lys Asp Asp Leu Glu Ser Ile Lys Lys
99                    305                   310
100 Val Ile Lys Glu Glu Lys Glu Lys Phe Pro
101                   315                   320
102 Ser Ser Pro Pro Thr Thr Pro Pro Ser Pro
103                   325                   330
104 Ala Lys Thr Asp Glu Gln Lys Lys Glu Ser
105                   335                   340
```

Input Set : **A:\Sequence.txt**
Output Set: **N:\CRF3\07112002\J057532.raw**

```
106 Lys Phe Leu Pro Phe Leu Thr Asn Ile Glu
107             345                 350
108 Thr Leu Tyr Asn Asn Leu Val Asn Lys Ile
109             355                 360
110 Asp Asp Tyr Leu Ile Asn Leu Lys Ala Lys
111             365                 370
112 Ile Asn Asp Cys Asn Val Glu Lys Asp Glu
113             375                 380
114 Ala His Val Lys Ile Thr Lys Leu Ser Asp
115             385                 390
116 Leu Lys Ala Ile Asp Asp Lys Ile Asp Leu
117             395                 400
118 Phe Lys Asn Pro Tyr Asp Phe Glu Ala Ile
119             405                 410
120 Lys Lys Leu Ile Asn Asp Asp Thr Lys Lys
121             415                 420
122 Asp Met Leu Gly Lys Leu Leu Ser Thr Gly
123             425                 430
124 Leu Val Gln Asn Phe Pro Asn Thr Ile Ile
125             435                 440
126 Ser Lys Leu Ile Glu Gly Lys Phe Gln Asp
127             445                 450
128 Met Leu Asn Ile Ser Gln His Gln Cys Val
129             455                 460
130 Lys Lys Gln Cys Pro Glu Asn Ser Gly Cys
131             465                 470
132 Phe Arg His Leu Asp Glu Arg Glu Glu Cys
133             475                 480
134 Lys Cys Leu Leu Asn Tyr Lys Gln Glu Gly
135             485                 490
136 Asp Lys Cys Val Glu Asn Pro Asn Pro Thr
137             495                 500
138 Cys Asn Glu Asn Asn Gly Gly Cys Asp Ala
139             505                 510
140 Asp Ala Thr Cys Thr Glu Glu Asp Ser Gly
141             515                 520
142 Ser Ser Arg Lys Lys Ile Thr Cys Glu Cys
143             525                 530
144 Thr Lys Pro Asp Ser Tyr Pro Leu Phe Asp
145             535                 540
146 Gly Ile Phe Cys Ser Ser
147             545
149 <210> SEQ ID NO: 2
151 <211> LENGTH: 431
152 <212> TYPE: PRT
153 <213> ORGANISM: Artificial sequence
```
W--> 154 **<220> FEATURE:**
```
155 <223> OTHER INFORMATION: E. coli expressed P. falciparum MSP142 (3D7) Protein
```
Sequence in pET(50)MSP1-42
W--> 156 **<400> SEQUENCE: 2**

Input Set : **A:\Sequence.txt**
Output Set: **N:\CRF3\07112002\J057532.raw**

```
157 Met His His His His His His Ser Ser Gly
158 1               5                   10
159 Leu Val Pro Arg Gly Ser Gly Met Lys Glu
160             15                  20
161 Thr Ala Ala Ala Lys Phe Glu Arg Gln His
162             25                  30
163 Met Asp Ser Pro Asp Leu Gly Thr Asp Asp
164             35                  40
165 Asp Asp Lys Ala Met Ala Asp Ile Gly Ser
166             45                  50
167 Ile Glu Gly Arg Gly Thr Met Ala Ile Ser
168             55                  60
169 Val Thr Met Asp Asn Ile Leu Ser Gly Phe
170             65                  70
171 Glu Asn Glu Tyr Asp Val Ile Tyr Leu Lys
172             75                  80
173 Pro Leu Ala Gly Val Tyr Arg Ser Leu Lys
174             85                  90
175 Lys Gln Ile Glu Lys Asn Ile Phe Thr Phe
176             95                  100
177 Asn Leu Asn Leu Asn Asp Ile Leu Asn Ser
178             105                 110
179 Arg Leu Lys Lys Arg Lys Tyr Phe Leu Asp
180             115                 120
181 Val Leu Glu Ser Asp Leu Met Gln Phe Lys
182             125                 130
183 His Ile Ser Ser Asn Glu Tyr Ile Ile Glu
184             135                 140
185 Asp Ser Phe Lys Leu Leu Asn Ser Glu Gln
```

E--> 186   155 145   150

```
187 Lys Asn Thr Leu Leu Lys Ser Tyr Lys Tyr
```

E--> 188   165 155   160

```
189 Ile Lys Glu Ser Val Glu Asn Asp Ile Lys
```

E--> 190   175 165   170

```
191 Phe Ala Gln Glu Gly Ile Ser Tyr Tyr Glu
```

E--> 192   185 175   180

```
193 Lys Val Leu Ala Lys Tyr Lys Asp Asp Leu
```

E--> 194   195 185   190

```
195 Glu Ser Ile Lys Lys Val Ile Lys Glu Glu
```

E--> 196   205 195   200

```
197 Lys Glu Lys Phe Pro Ser Ser Pro Pro Thr
```

E--> 198   215 205   210

```
199 Thr Pro Pro Ser Pro Ala Lys Thr Asp Glu
```

E--> 200   225 215   220

```
201 Gln Lys Lys Glu Ser Lys Phe Leu Pro Phe
```

E--> 202   235 225   230

```
203 Leu Thr Asn Ile Glu Thr Leu Tyr Asn Asn
```

E--> 204   245 235   240

```
205 Leu Val Asn Lys Ile Asp Asp Tyr Leu Ile
```

invalid amino numbering

Input Set : A:\Sequence.txt
Output Set: N:\CRF3\07112002\J057532.raw

```
E--> 206                   255                   250
     207 Asn Leu Lys Ala Lys Ile Asn Asp Cys Asn
E--> 208                   265                   260
     209 Val Glu Lys Asp Glu Ala His Val Lys Ile
E--> 210                   275                   270
     211 Thr Lys Leu Ser Asp Leu Lys Ala Ile Asp
E--> 212                   285                   280
     213 Asp Lys Ile Asp Leu Phe Lys Asn Pro Tyr
E--> 214                   295                   290
     215 Asp Phe Glu Ala Ile Lys Lys Leu Ile Asn
E--> 216                   305                   300
     217 Asp Asp Thr Lys Lys Asp Met Leu Gly Lys
E--> 218                   315                   310
     219 Leu Leu Ser Thr Gly Leu Val Gln Asn Phe
E--> 220                   325                   320
     221 Pro Asn Thr Ile Ile Ser Lys Leu Ile Glu
E--> 222                   335                   330
     223 Gly Lys Phe Gln Asp Met Leu Asn Ile Ser
E--> 224                   345                   340
     225 Gln His Gln Cys Val Lys Lys Gln Cys Pro
E--> 226                   355                   350
     227 Glu Asn Ser Gly Cys Phe Arg His Leu Asp
E--> 228                   365                   360
     229 Glu Arg Glu Glu Cys Lys Cys Leu Leu Asn
E--> 230                   375                   370
     231 Tyr Lys Gln Glu Gly Asp Lys Cys Val Glu
E--> 232                   385                   380
     233 Asn Pro Asn Pro Thr Cys Asn Glu Asn Asn
E--> 234                   395                   390
     235 Gly Gly Cys Asp Ala Asp Ala Thr Cys Thr
E--> 236                   405                   400
     237 Glu Glu Asp Ser Gly Ser Ser Arg Lys Lys
E--> 238                   415                   410
     239 Ile Thr Cys Glu Cys Thr Lys Pro Asp Ser
E--> 240                   425                   420
     241 Tyr Pro Leu Phe Asp Gly Ile Phe Cys Ser
E--> 242                   435                   430
     243 Ser
     493 <210> SEQ ID NO: 7
     494 <211> LENGTH: 391
     495 <212> TYPE: PRT
     496 <213> ORGANISM: Artificial sequence
W--> 497 <220> FEATURE:
     497 <223> OTHER INFORMATION: E. coli expressed P. falciparum MSP-142 (3D7)
E--> 498 <400> SEQUENCE: 7
     499 Met Ala His His His His His His Pro Gly
     500 1               5                   10
     501 Gly Ser Gly Ser Gly Thr Met Ala Ile Ser
     502                 15                  20
```

[handwritten annotations: "Invalid amino numbering", arrow pointing down; "<220> was missing → <220> header field mandatory"]

```
503 Val Thr Met Asp Asn Ile Leu Ser Gly Phe
504                 25                      30
505 Glu Asn Glu Tyr Asp Val Ile Tyr Leu Lys
506                 35                      40
507 Pro Leu Ala Gly Val Tyr Arg Ser Leu Lys
508                 45                      50
509 Lys Gln Ile Glu Lys Asn Ile Phe Thr Phe
510                 55                      60
511 Asn Leu Asn Leu Asn Asp Ile Leu Asn Ser
512                 65                      70
513 Arg Leu Lys Lys Arg Lys Tyr Phe Leu Asp
514                 75                      80
515 Val Leu Glu Ser Asp Leu Met Gln Phe Lys
516                 85                      90
517 His Ile Ser Ser Asn Glu Tyr Ile Ile Glu
518                 95                     100
519 Asp Ser Phe Lys Leu Leu Asn Ser Glu Gln
520                105                     110
521 Lys Asn Thr Leu Leu Lys Ser Tyr Lys Tyr
522                115                     120
523 Ile Lys Glu Ser Val Glu Asn Asp Ile Lys
524                125                     130
525 Phe Ala Gln Glu Gly Ile Ser Tyr Tyr Glu
526                135                     140
527 Lys Val Leu Ala Lys Tyr Lys Asp Asp Leu
528                145                     150
529 Glu Ser Ile Lys Lys Val Ile Lys Glu Glu
530                155                     160
531 Lys Glu Lys Phe Pro Ser Ser Pro Pro Thr
532                165                     170
533 Thr Pro Pro Ser Pro Ala Lys Thr Asp Glu
534                175                     180
535 Gln Lys Lys Glu Ser Lys Phe Leu Pro Phe
536                185                     190
537 Leu Thr Asn Ile Glu Thr Leu Tyr Asn Asn
538                195                     200
539 Leu Val Asn Lys Ile Asp Asp Tyr Leu Ile
540                205                     210
541 Asn Leu Lys Ala Lys Ile Asn Asp Cys Asn
542                215                     220
543 Val Glu Lys Asp Glu Ala His Val Lys Ile
544                225                     230
545 Thr Lys Leu Ser Asp Leu Lys Ala Ile Asp
546                235                     240
547 Asp Lys Ile Asp Leu Phe Lys Asn Pro Tyr
548                245                     250
549 Asp Phe Glu Ala Ile Lys Lys Leu Ile Asn
550                255                     260
551 Asp Asp Thr Lys Lys Asp Met Leu Gly Lys
```

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/057,532

Input Set : **A:\Sequence.txt**
Output Set: **N:\CRF3\07112002\J057532.raw**

```
552                   265                   270
553 Leu Leu Ser Thr Gly Leu Val Gln Asn Phe
554                   275                   280
555 Pro Asn Thr Ile Ile Ser Lys Leu Ile Glu
556                   285                   290
557 Gly Lys Phe Gln Asp Met Leu Asn Ile Ser
558                   295                   300
559 Gln His Gln Cys Val Lys Lys Gln Cys Pro
560                   305                   310
561 Glu Asn Ser Gly Cys Phe Arg His Leu Asp
562                   315                   320
563 Glu Arg Glu Glu Cys Lys Cys Leu Leu Asn
564                   325                   330
565 Tyr Lys Gln Glu Gly Asp Lys Cys Val Glu
566                   335                   340
567 Asn Pro Asn Pro Thr Cys Asn Glu Asn Asn
568                   345                   350
569 Gly Gly Cys Asp Ala Asp Ala Thr Cys Thr
570                   355                   360
571 Glu Glu Asp Ser Gly Ser Ser Arg Lys Lys
572                   365                   370
573 Ile Thr Cys Glu Cys Thr Lys Pro Asp Ser
574                   375                   380
575 Tyr Pro Leu Phe Asp Gly Ile Phe Cys Ser
576                   385                   390
577 Ser
```

RAW SEQUENCE LISTING ERROR SUMMARY   DATE: 07/11/2002
PATENT APPLICATION: **US/10/057,532**   TIME: 16:04:58

Input Set : **A:\Sequence.txt**
Output Set: **N:\CRF3\07112002\J057532.raw**

Invalid Line Length:
The rules require that a line not exceed 72 characters in length. This includes spaces.

Seq#:1; Line(s) 36
Seq#:2; Line(s) 155

VERIFICATION SUMMARY   DATE: 07/11/2002
PATENT APPLICATION: US/10/057,532   TIME: 16:04:58

Input Set : **A:\Sequence.txt**
Output Set: **N:\CRF3\07112002\J057532.raw**

```
L:3 M:259 W: Allowed number of lines exceeded, (1) GENERAL INFORMATION:
L:21 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:25 M:256 W: Invalid Numeric Header Field, Wrong Prior FILING DATE:YYYY-MM-DD
L:35 M:283 W: Missing Blank Line separator, <220> field identifier
L:37 M:283 W: Missing Blank Line separator, <400> field identifier
L:44 M:330 E: (2) Invalid Amino Acid Designator, NUMBER OF INVALID KEYS:1
L:154 M:283 W: Missing Blank Line separator, <220> field identifier
L:156 M:283 W: Missing Blank Line separator, <400> field identifier
L:186 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
M:332 Repeated in SeqNo=2
L:250 M:283 W: Missing Blank Line separator, <220> field identifier
L:252 M:283 W: Missing Blank Line separator, <400> field identifier
L:339 M:283 W: Missing Blank Line separator, <400> field identifier
L:376 M:283 W: Missing Blank Line separator, <400> field identifier
L:458 M:283 W: Missing Blank Line separator, <220> field identifier
L:460 M:283 W: Missing Blank Line separator, <400> field identifier
L:497 M:258 W: Mandatory Feature missing, <220> not found for SEQ ID#:7
L:498 M:200 E: Mandatory Header Field missing, <220> not found for SEQ ID#:7
L:498 M:283 W: Missing Blank Line separator, <400> field identifier
L:584 M:283 W: Missing Blank Line separator, <220> field identifier
L:586 M:283 W: Missing Blank Line separator, <400> field identifier
L:593 M:283 W: Missing Blank Line separator, <220> field identifier
L:595 M:283 W: Missing Blank Line separator, <400> field identifier
L:605 M:283 W: Missing Blank Line separator, <220> field identifier
L:607 M:283 W: Missing Blank Line separator, <400> field identifier
L:615 M:283 W: Missing Blank Line separator, <220> field identifier
L:617 M:283 W: Missing Blank Line separator, <400> field identifier
L:626 M:283 W: Missing Blank Line separator, <220> field identifier
L:628 M:283 W: Missing Blank Line separator, <400> field identifier
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